AMENDMENTS TO THE CLAIMS:

Set forth below in ascending order, with status identifiers, is a complete listing of all claims currently under examination. Changes to any amended claims are indicated by strikethrough and underlining. This listing also reflects any cancellation and/or addition of claims.

1. (Currently Amended) A process for separating a cell type from a mixture of cell types by electrophoresis comprising:

(a) providing a sample comprising between about 10^5 to about 10^{10} cells/mL of a mixture of cell types to a first or second sample chamber of an electrophoresis apparatus, wherein said electrophoresis apparatus ~~comprising~~ comprises a first electrolyte chamber; a second electrolyte chamber, a first sample chamber disposed between the first electrolyte chamber and the second electrolyte chamber; a second sample chamber disposed adjacent to the first sample chamber disposed and between the first electrolyte chamber and the second electrolyte chamber; a first ion-permeable barrier disposed between the first sample chamber and the second sample chamber; a second ion-permeable barrier disposed between the first electrolyte chamber and the first sample chamber; a third ion-permeable barrier disposed between the second sample chamber and the second electrolyte chamber; and the electrodes disposed in the first and second electrolyte chambers; and

(b) applying an electric potential between the electrodes causing at least one cell type in the first sample chamber or the second sample chamber to move through the first ion-permeable barrier into the other of the first or second sample chamber.

2. (Original) The process according to claim 1 wherein the at least one cell type is selected from the group consisting of cancer, totipotent, multipotent, pluripotent, stem, viable, non-viable, bacterial, erythrocyte, leukocyte, bone marrow, organ, tissue, single cell eukaryote, prokaryote, algae, and plant.

3. (Original) The process according to claim 2 wherein the at least one cell type is selected from the group consisting of erythrocyte, leukocyte, bone marrow cell, organ cell, stem cell, and tissue cell.

4. (Previously Presented) The process according to claim 1 wherein the sample ~~contains~~ comprises at least two cell populations.

5. (Currently Amended) The process according to claim 1 wherein ~~the~~ a cell type of interest ~~is caused to move~~moves out of the sample through the first ion-permeable barrier into the other of the first or second sample chamber and unwanted cell types remain in the sample during electrophoresis, or the cell type of interest remains in the sample and unwanted cell types ~~are caused to~~ move out of the sample into the other of the first or second sample chamber during electrophoresis.

6. (Previously Presented) The process according to claim 1 wherein substantially all transbarrier migration of a desired cell type occurs upon the application of the electric potential.

7. (Previously Presented) The process according to claim 1 wherein the first ion-permeable barrier prevents substantial convective mixing of contents of the first and second sample chambers, the second ion-permeable barrier prevents substantial convective mixing of contents of the first electrolyte chamber and the first sample chamber, and the third ion-permeable barrier prevents substantial convective mixing of contents of the second electrolyte chamber and the second sample chamber.

8. (Previously Presented) The process according to claim 1 wherein the step of applying an electric potential between the electrodes is maintained until at least one cell type reaches a desired purity level in the first or second sample chamber.

9. (Previously Presented) The process according to claim 1 wherein the first ion-permeable barrier is a membrane having a characteristic average pore size and pore size distribution.

10. (Previously Presented) The process according to claim 1 wherein all the ion-permeable barriers are membranes having a characteristic average pore size and pore size distribution.

11. (Previously Presented) The process according to claim 10 wherein at least a portion of the membranes are made from polyacrylamide and have a molecular mass cut-off of at least about 5 kDa.

12. (Previously Presented) The process according to claim 10 wherein the first barrier is a large pore sized membrane selected from the group consisting of a polycarbonate membrane, a polyacrylamide membrane, a polyvinyl alcohol (PVA) membrane, a polyethersulfone (PES) membrane, a polyvinylidene fluoride (PVDF) membrane, a nylon membrane, an acrylic copolymer based membrane, a vinyl copolymer based membrane, a polysulfone membrane, a cellulose membrane, a cellulose triacetate membrane, a cellulose ester, a polypropylene membrane, a silicate, a borosilicate, and a glass fiber.

13. (Previously Presented) The process according to claim 12 wherein the large pore sized membrane is a polycarbonate membrane.

14. (Previously Presented) The process according to claim 12 or 13 wherein the pore size is from about 0.01 to about 100 μm.

15. (Previously Presented) The process according to claim 14 wherein the pore size is from about 1 to about 10 μm.

16. (Previously Presented) The process according to claim 1 wherein the second and third barriers are restriction membranes having a molecular mass cut off less than that of the first barrier.

17. (Original) The process according to claim 16 wherein the restriction membranes are formed from polyacrylamide.

18. (Previously Presented) The process according to claim 1 wherein at least about 50% of the at least one cell type remains viable or substantially unchanged after separation.

19. (Previously Presented) The process according to claim 18 wherein at least about 60% of the at least one cell type remains viable or substantially unchanged after separation.

20. (Previously Presented) The process according to claim 1 wherein the sample is processed in a static form in batches or processed in a substantially continuous form by moving the sample and electrolyte in streams through the apparatus.

21. (Previously Presented) The process according to claim 1 wherein the difference in the electric potential is from about 1 to about 200 V.

22. (Previously Presented) The process according to claim 21 wherein the voltage is about 60 V.

23. (Previously Presented) The process according to claim 21 wherein the field strengths are from about 10 to about 100 V/cm.

24. (Previously Presented) The process according to claim 20 wherein the field strength is about 50 V/cm.

25. (Currently Amended) The process according to claim 1 wherein ~~electrophoresis run times are~~the electric potential is applied for a period of from about 1 to about 60 minutes.

26. (Previously Presented) The process according to claim 25 wherein the electrophoresis run time is about 10 minutes.

27. (Previously Presented) The process according to claim 1 wherein buffer or electrolyte concentrations are between about 100 to about 400 mM.

28. (Previously Presented) The process according to claim 27 wherein the buffer or electrolyte is a cell-compatible biological buffer comprising at least one component selected from the group consisting of HEPPS, HEPES, BisTris, sodium chloride, phosphate buffer salts, sucrose, glucose and mannitol.

29. (Canceled)

30. (Currently Amended) The process according to claim ~~29~~ 1 wherein the cell ~~concentrations~~ concentration of the sample ~~are~~ is between about 10^6 and about 10^8 cells/mL.